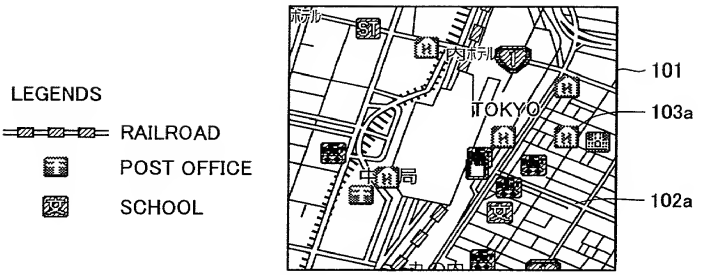
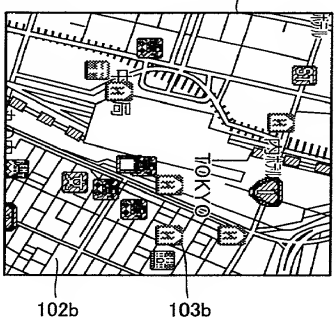
FIG.1A
PRIOR ART



ROTATED

FIG.1B
PRIOR ART



UNROTATED

FIG.1C
PRIOR ART

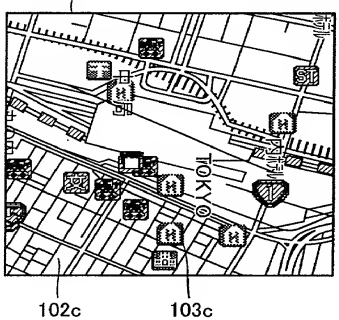


FIG.2

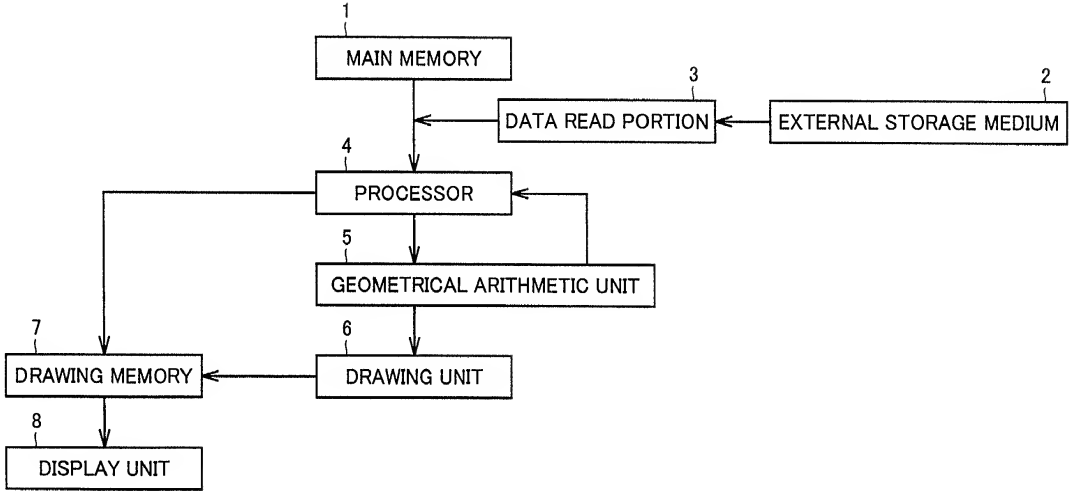

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
5
GEOMETRICAL ARITHMETIC UNIT
7
DRAWING MEMORY
6
DRAWING UNIT
8
DISPLAY UNIT

FIG.3

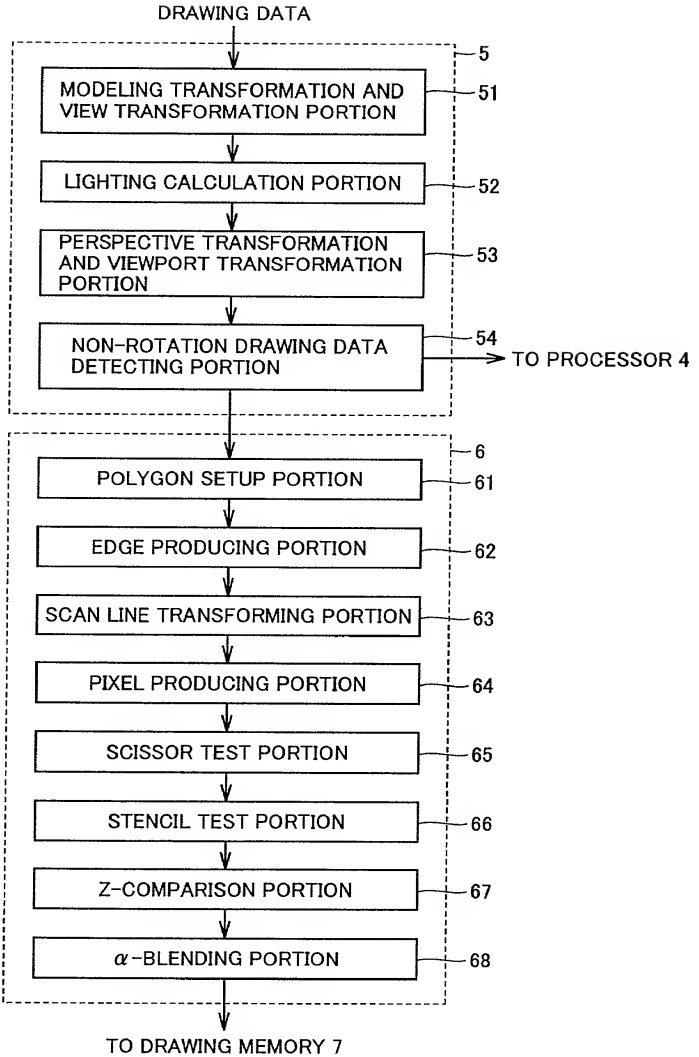

DRAWING DATA
5
MODELING TRANSFORMATION AND VIEW TRANSFORMATION PORTION
51
LIGHTING CALCULATION PORTION
52
PERSPECTIVE TRANSFORMATION AND VIEWPORT TRANSFORMATION PORTION
53
NON-ROTATION DRAWING DATA DETECTING PORTION
54
TO PROCESSOR 4
6
POLYGON SETUP PORTION
61
EDGE PRODUCING PORTION
62
SCAN LINE TRANSFORMING PORTION
63
PIXEL PRODUCING PORTION
64
SCISSOR TEST PORTION
65
STENCIL TEST PORTION
66
Z-COMPARISON PORTION
67
α-BLENDING PORTION
68
TO DRAWING MEMORY 7

FIG.4

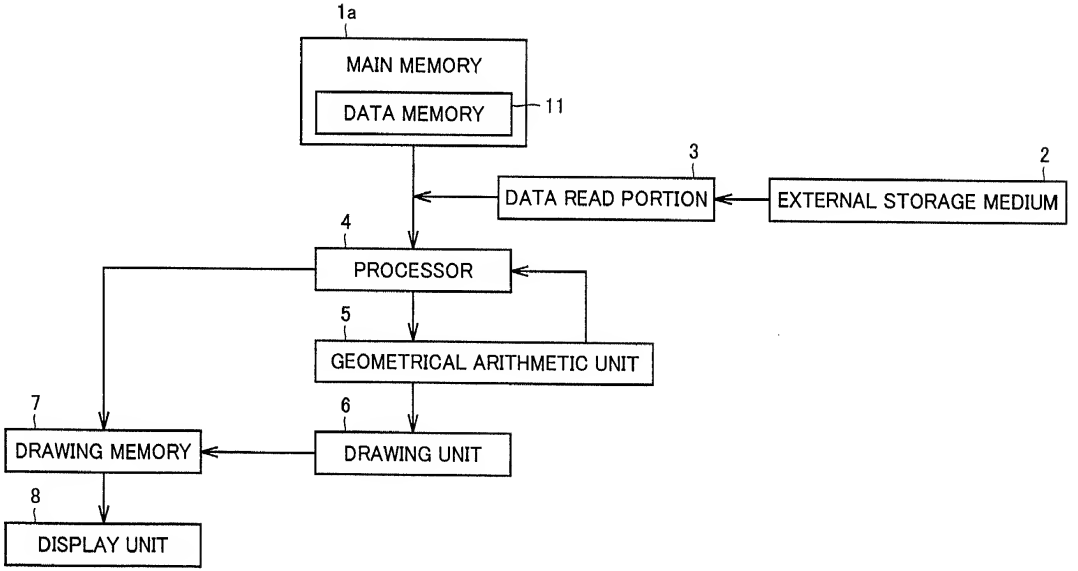

1a
MAIN MEMORY
DATA MEMORY
11
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
5
GEOMETRICAL ARITHMETIC UNIT
7
DRAWING MEMORY
6
DRAWING UNIT
8
DISPLAY UNIT

FIG.5

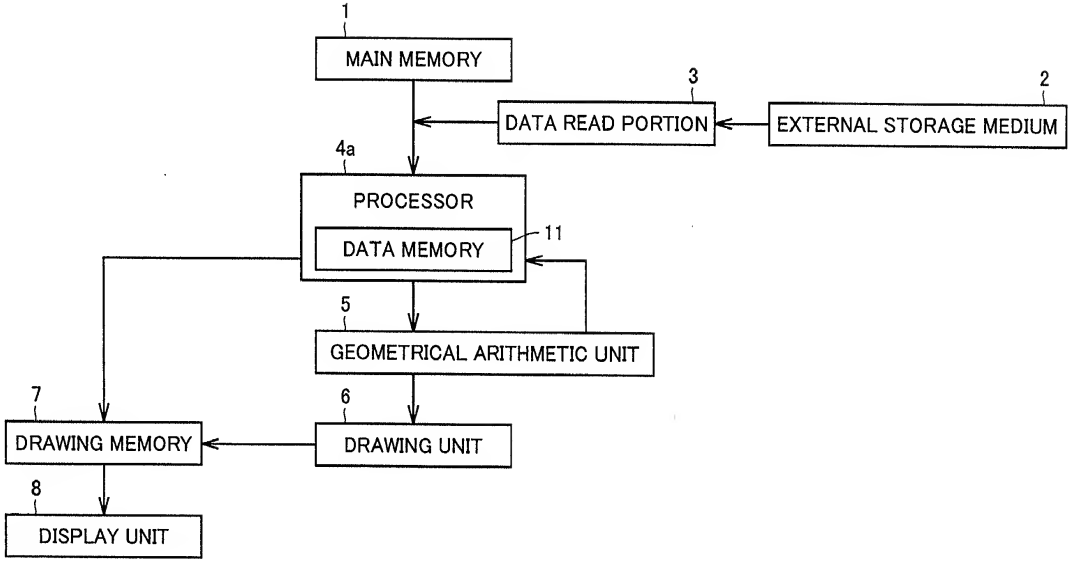

1
MAIN MEMORY
3
2
DATA READ PORTION
EXTERNAL STORAGE MEDIUM
4a
PROCESSOR
DATA MEMORY
11
5
GEOMETRICAL ARITHMETIC UNIT
7
6
DRAWING MEMORY
DRAWING UNIT
8
DISPLAY UNIT

FIG.6

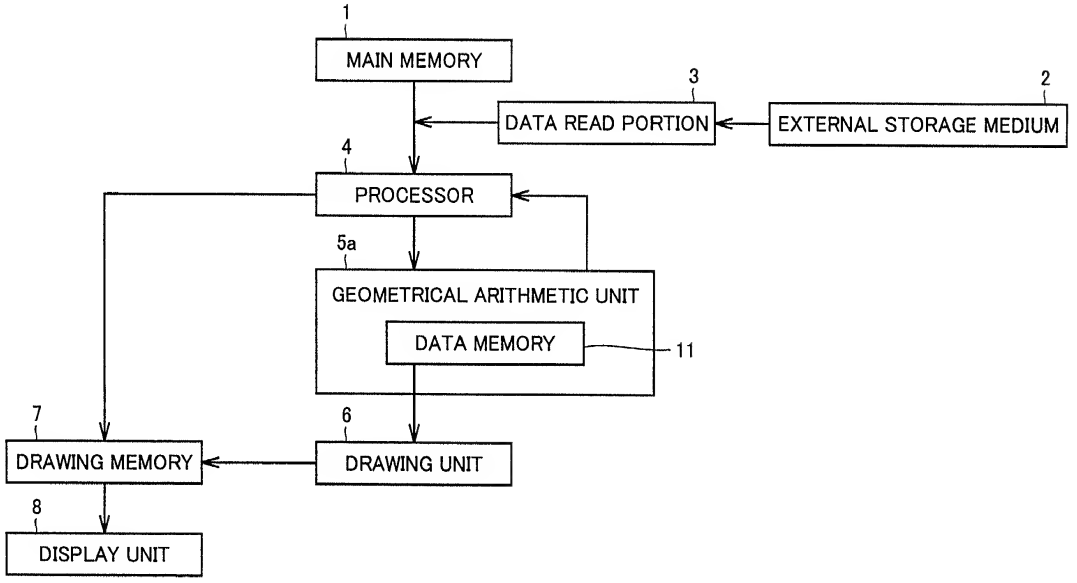

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
5a
GEOMETRICAL ARITHMETIC UNIT
DATA MEMORY
11
7
DRAWING MEMORY
6
DRAWING UNIT
8
DISPLAY UNIT

FIG.7

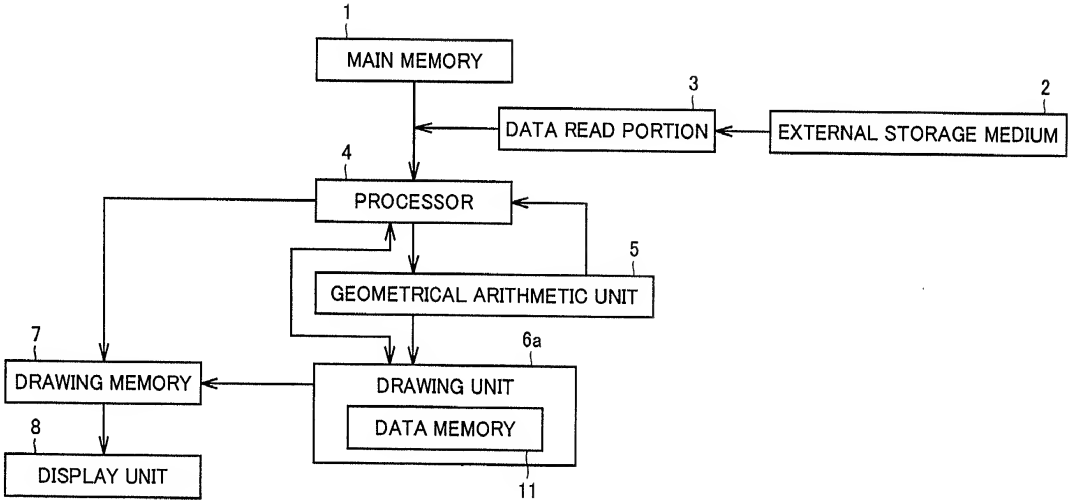

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
5
GEOMETRICAL ARITHMETIC UNIT
7
DRAWING MEMORY
6a
DRAWING UNIT
DATA MEMORY
8
DISPLAY UNIT
11

FIG.8

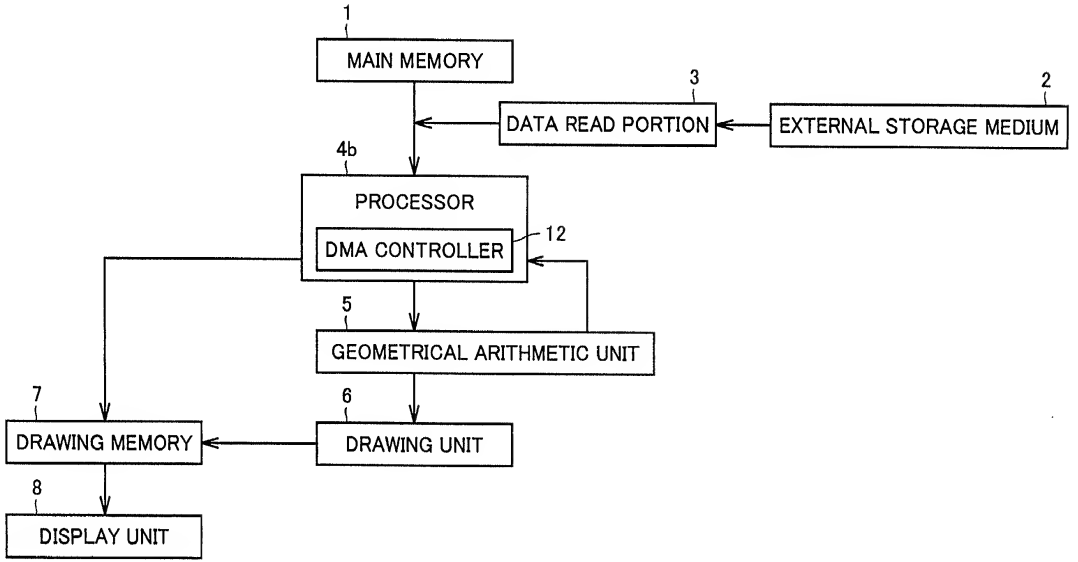

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4b
PROCESSOR
DMA CONTROLLER
12
5
GEOMETRICAL ARITHMETIC UNIT
7
DRAWING MEMORY
6
DRAWING UNIT
8
DISPLAY UNIT

FIG.9

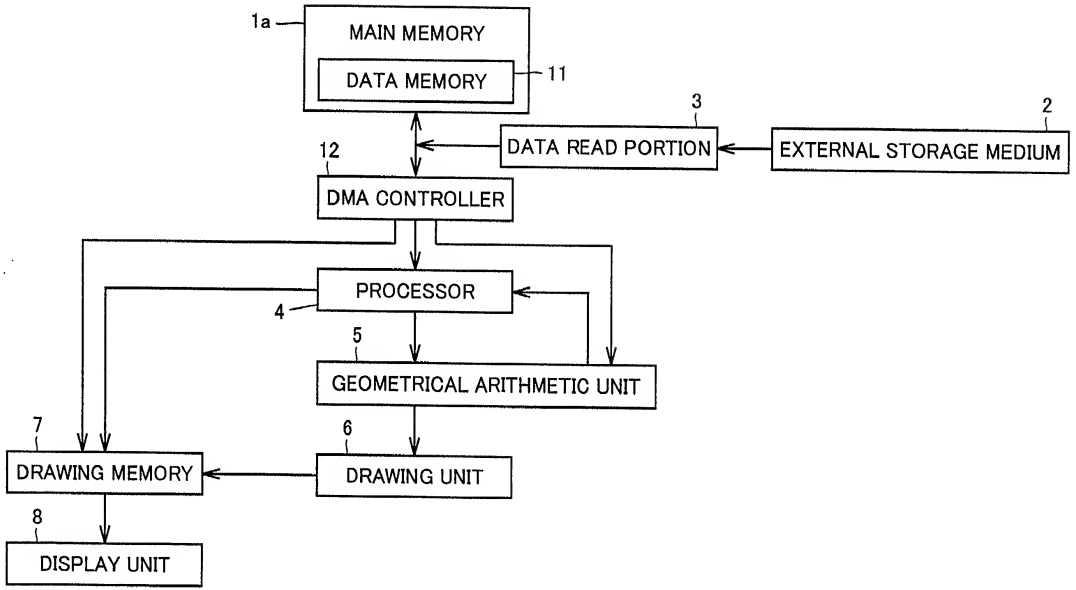

1a
MAIN MEMORY
DATA MEMORY
11
3
2
DATA READ PORTION
EXTERNAL STORAGE MEDIUM
12
DMA CONTROLLER
PROCESSOR
4
5
GEOMETRICAL ARITHMETIC UNIT
7
6
DRAWING MEMORY
DRAWING UNIT
8
DISPLAY UNIT

FIG.10

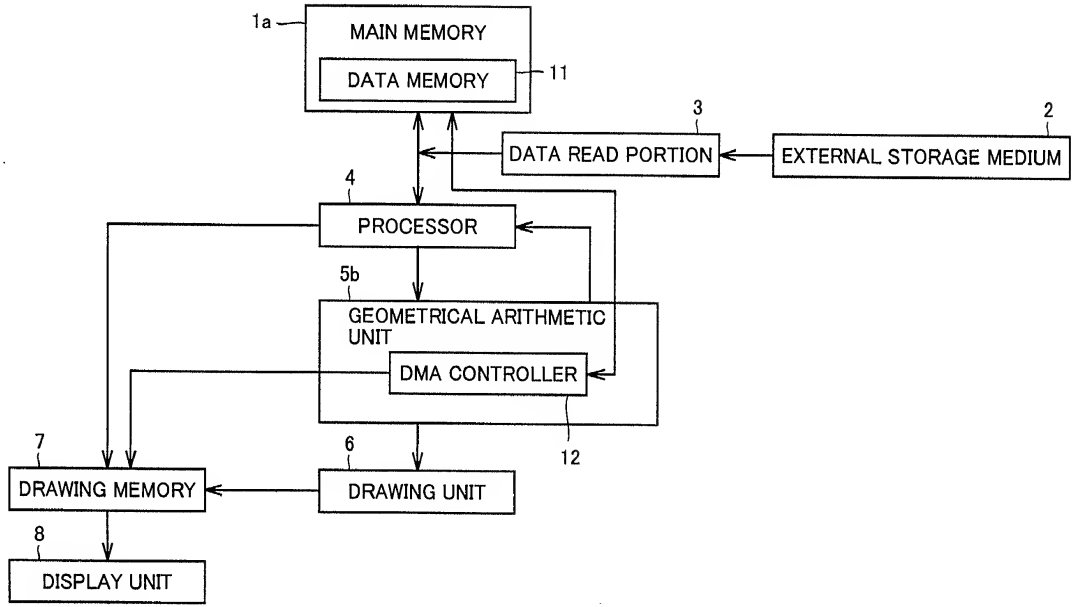

1a
MAIN MEMORY
DATA MEMORY
11
3
2
DATA READ PORTION
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
5b
GEOMETRICAL ARITHMETIC UNIT
DMA CONTROLLER
12
7
6
DRAWING MEMORY
DRAWING UNIT
8
DISPLAY UNIT

FIG.11

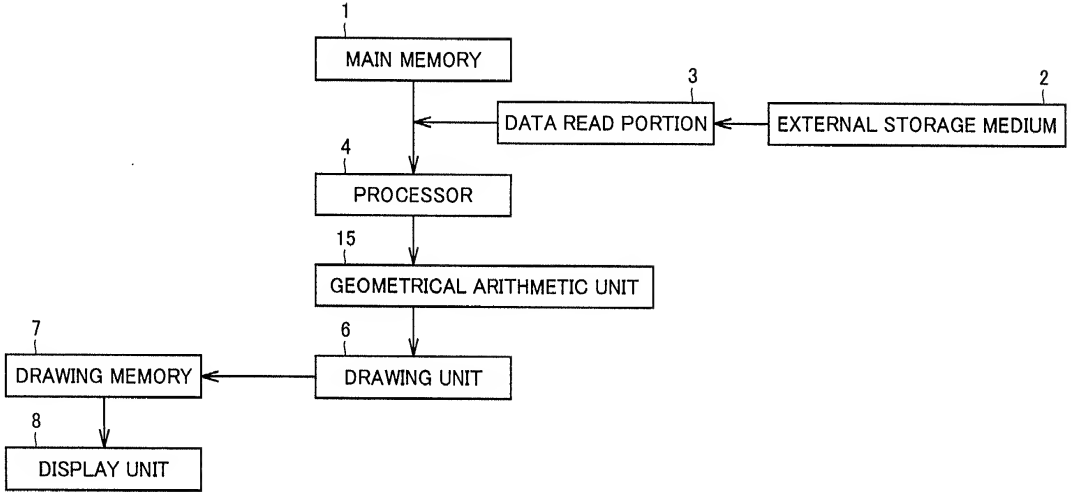

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
15
GEOMETRICAL ARITHMETIC UNIT
7
DRAWING MEMORY
6
DRAWING UNIT
8
DISPLAY UNIT

FIG.12

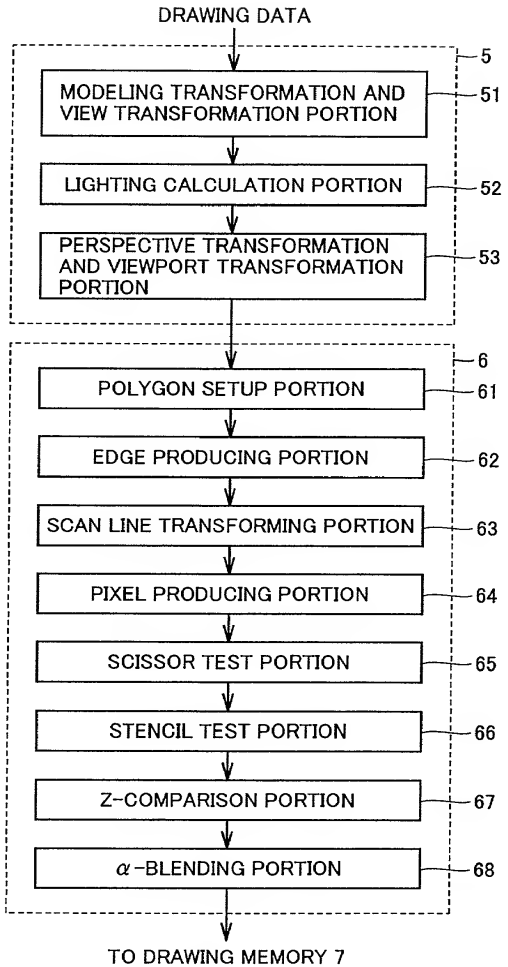

DRAWING DATA
5
MODELING TRANSFORMATION AND VIEW TRANSFORMATION PORTION
51
LIGHTING CALCULATION PORTION
52
PERSPECTIVE TRANSFORMATION AND VIEWPORT TRANSFORMATION PORTION
53
6
POLYGON SETUP PORTION
61
EDGE PRODUCING PORTION
62
SCAN LINE TRANSFORMING PORTION
63
PIXEL PRODUCING PORTION
64
SCISSOR TEST PORTION
65
STENCIL TEST PORTION
66
Z-COMPARISON PORTION
67
α-BLENDING PORTION
68
TO DRAWING MEMORY 7

FIG.13

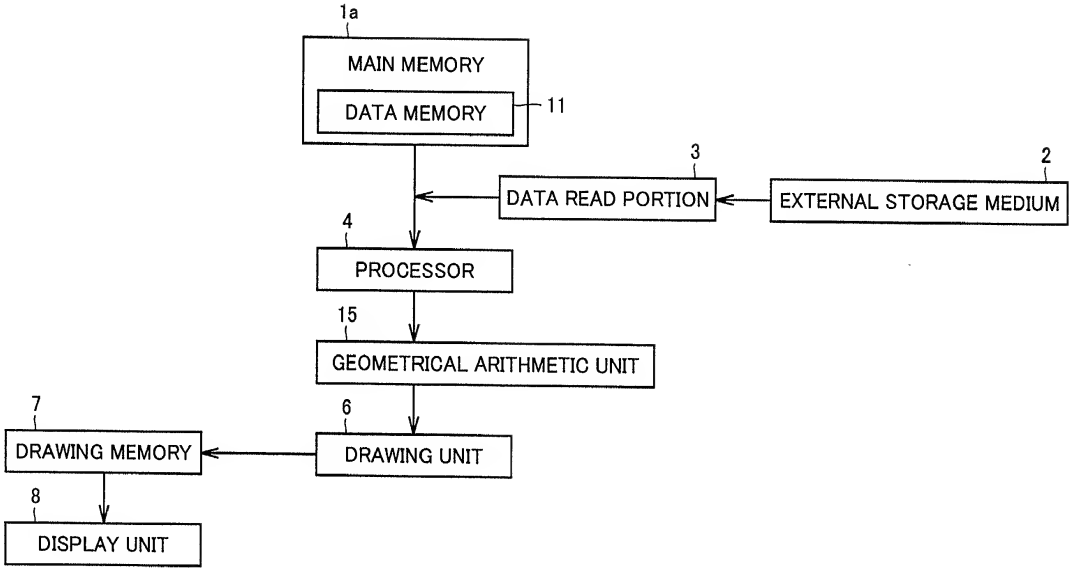

1a
MAIN MEMORY
DATA MEMORY
11
3
2
DATA READ PORTION
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
15
GEOMETRICAL ARITHMETIC UNIT
7
6
DRAWING MEMORY
DRAWING UNIT
8
DISPLAY UNIT

FIG.14

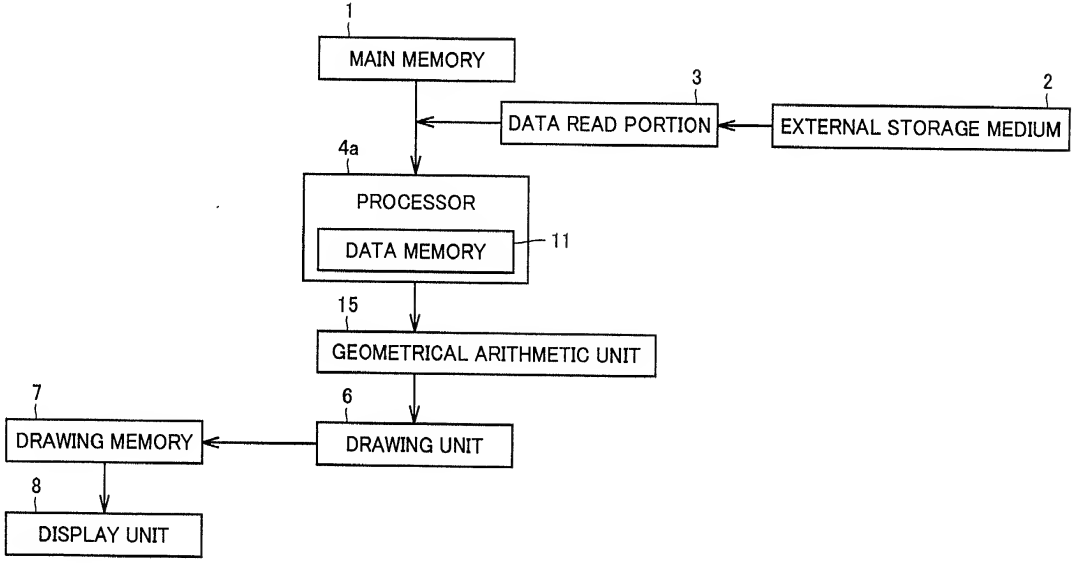

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4a
PROCESSOR
DATA MEMORY
11
15
GEOMETRICAL ARITHMETIC UNIT
7
DRAWING MEMORY
6
DRAWING UNIT
8
DISPLAY UNIT

FIG.15

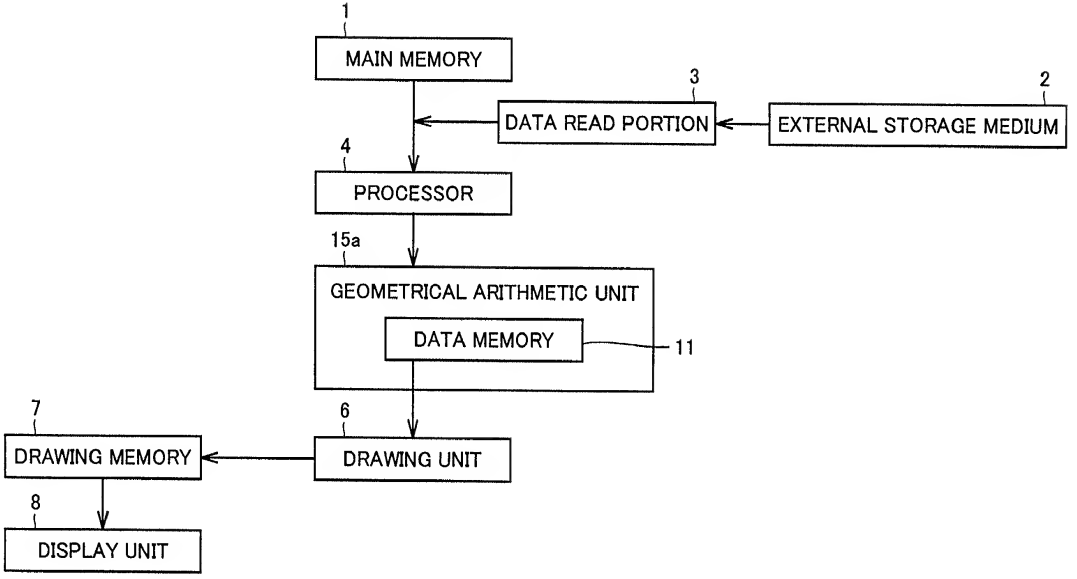

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
15a
GEOMETRICAL ARITHMETIC UNIT
DATA MEMORY
11
7
DRAWING MEMORY
6
DRAWING UNIT
8
DISPLAY UNIT

FIG.16

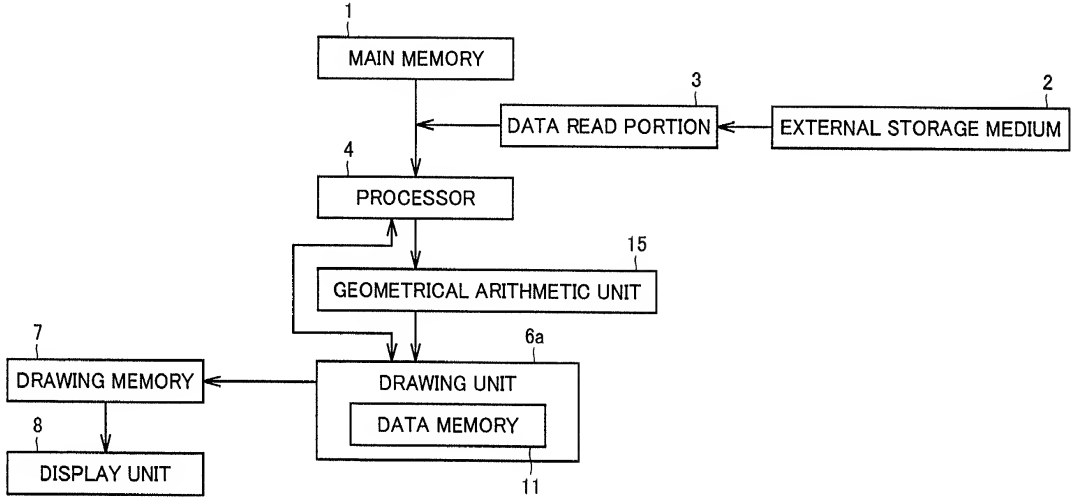

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
15
GEOMETRICAL ARITHMETIC UNIT
7
DRAWING MEMORY
6a
DRAWING UNIT
DATA MEMORY
8
DISPLAY UNIT
11

FIG.17

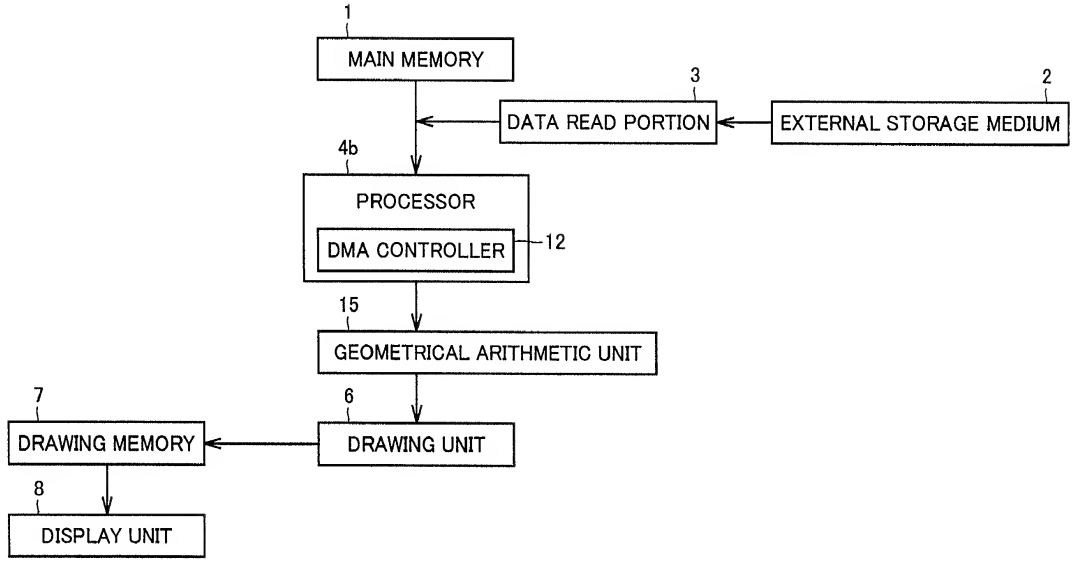

1
MAIN MEMORY
3
DATA READ PORTION
2
EXTERNAL STORAGE MEDIUM
4b
PROCESSOR
DMA CONTROLLER
12
15
GEOMETRICAL ARITHMETIC UNIT
7
DRAWING MEMORY
6
DRAWING UNIT
8
DISPLAY UNIT

FIG.18

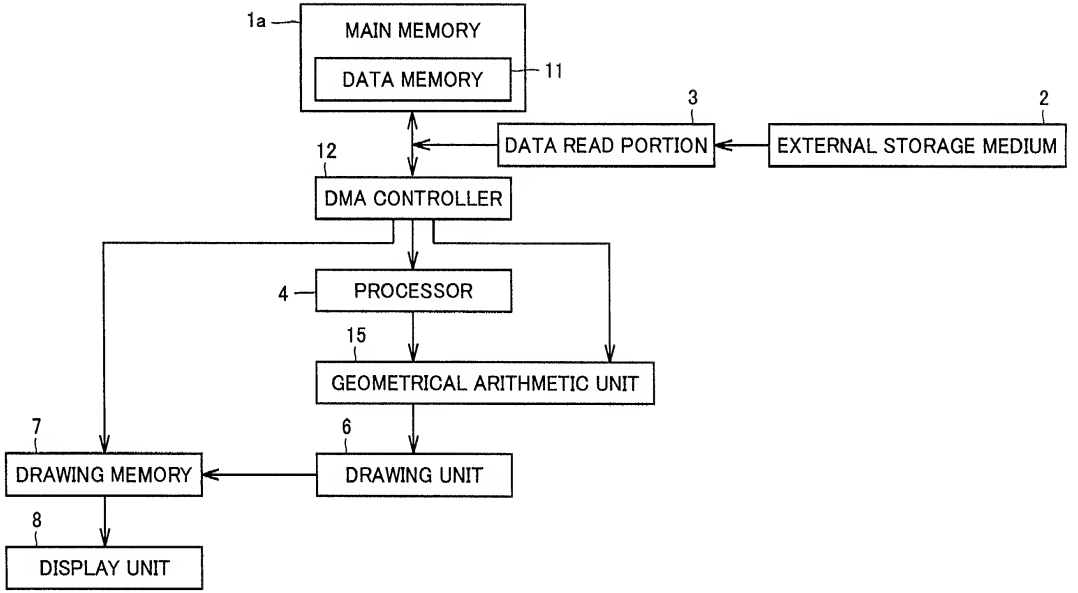
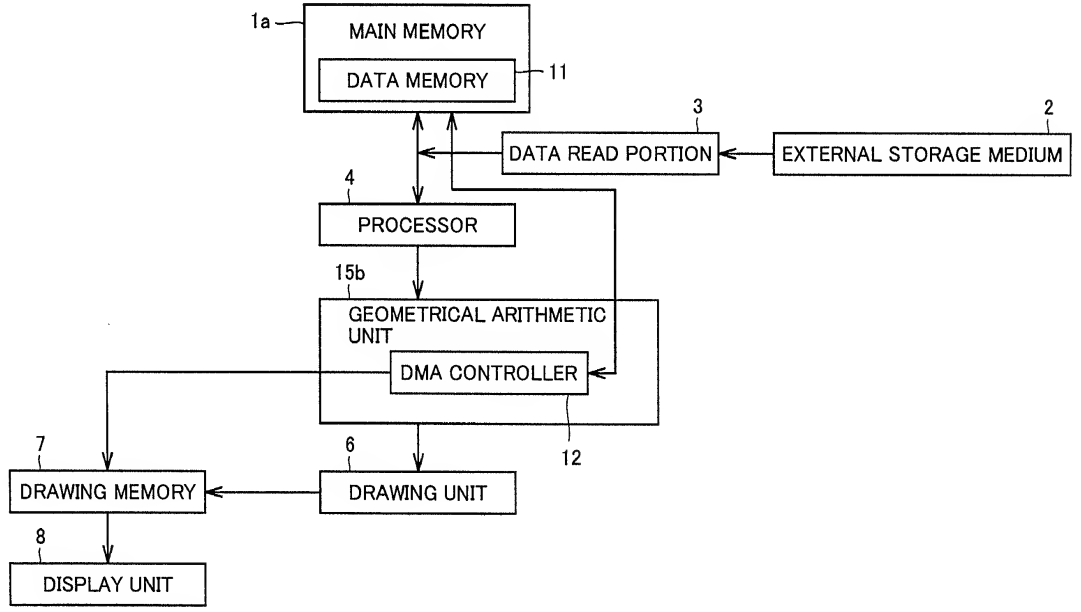

1a
MAIN MEMORY
DATA MEMORY
11
3
2
DATA READ PORTION
EXTERNAL STORAGE MEDIUM
12
DMA CONTROLLER
4
PROCESSOR
15
GEOMETRICAL ARITHMETIC UNIT
7
6
DRAWING MEMORY
DRAWING UNIT
8
DISPLAY UNIT

FIG.19


1a
MAIN MEMORY
DATA MEMORY
11
3
2
DATA READ PORTION
EXTERNAL STORAGE MEDIUM
4
PROCESSOR
15b
GEOMETRICAL ARITHMETIC UNIT
DMA CONTROLLER
12
7
6
DRAWING MEMORY
DRAWING UNIT
8
DISPLAY UNIT